

WHAT IS CLAIMED IS:

1. A communication processing system comprising:
a mobile node which is a mobile communication terminal device,
wherein, in a domain including at least one subnetwork, each subnetwork being associated with a physical network prefix, a virtual network prefix for the mobile node is determined as a network prefix that is different from the physical network prefix,
an address is configured based on the virtual network prefix and an identifier of the mobile node, and
the communications process with the mobile node is performed according to the address.
2. A communication processing system according to Claim 1, wherein the identifier of the mobile node is a unique identifier in the domain for identifying the mobile node.
3. A communication processing system according to Claim 1, wherein the identifier of the mobile node is a unique interface ID in the domain for identifying the mobile node.

4. A communication processing system according to Claim 1, wherein a router in the domain forwards a router advertisement as an information notification message containing information on the physical network prefix and the virtual network prefix.

5. A communication processing system according to Claim 1, wherein a router in the domain routes a packet having the address which contains the virtual network prefix by performing host-based routing based on the identifier of the mobile node which is contained in the address.

6. A communication processing system according to Claim 1, wherein a router in the domain routes a packet having an address which contains a physical network prefix by performing prefix-based routing based on the physical network prefix contained in the address, or by performing host-based routing based on the identifier of the mobile node.

7. A communication processing system according to Claim 1, wherein, when the mobile node moves between a first subnetwork to a second subnetwork in the domain or in different domains, the mobile node compares the value of the virtual network prefix which is contained in a router

advertisement serving as an information notification message which is received from a router on the second subnetwork, with the value of the virtual or physical network prefix which is contained in the address which is used in the first subnetwork; and

only if the values are different, the mobile node creates an address based on the virtual network prefix which is contained in the received router advertisement serving as an information notification message.

8. A communication processing system according to Claim 1, wherein, when the mobile node moves from a first subnetwork to a second subnetwork in the domain or in different domains, if the virtual network prefix is not contained in a router advertisement serving as an information notification message which is received from a router on the second subnetwork, the mobile node creates an address based on the physical network prefix.

9. A communication processing system according to Claim 1, wherein, when the mobile node moves between subnetworks in the domain or in different domains, the mobile node sends a routing update message to a router in the domain; and

the router which has received the routing update

message generates, updates, or deletes an entry for the mobile node in a routing table according to the received message.

10. A communication processing system according to Claim 1, wherein, when the mobile node moves between subnetworks in different domains, the mobile node stores a virtual-network-prefix-based IPv6 address as a care-of address in a binding update packet, the virtual-network-prefix-based IPv6 address being created according to address configuration based on the virtual network prefix, and sends the binding update packet to a home agent which manages the mobile node; and

the home agent which has received the binding update packet updates a binding cache, in which the correlation between a home address and the virtual-network-prefix-based IPv6 address as a care-of address is stored, according to the received binding update packet.

11. A communication processing system according to Claim 1, wherein a plurality of domains are networked in a hierarchical manner, each domain including the at least one subnetwork.

12. A communication processing method comprising the

steps of:

in a domain including at least one subnetwork, each subnetwork being associated with a physical network prefix,

determining a virtual network prefix for a mobile node that is a mobile communication terminal device as a network prefix that is different from the physical network prefix;

configuring an address based on the virtual network prefix and an identifier of the mobile node; and

performing communications with the mobile node according to the address.

13. A communication processing method according to Claim 12, wherein the identifier of the mobile node is a unique identifier in the domain for identifying the mobile node.

14. A communication processing method according to Claim 12, wherein the identifier of the mobile node is a unique interface ID in the domain for identifying the mobile node.

15. A communication processing method according to Claim 12, wherein a router in the domain forwards a router advertisement as an information notification message containing information on the physical network prefix and

the virtual network prefix.

16. A communication processing method according to Claim 12, wherein a router in the domain routes a packet having the address which contains the virtual network prefix by performing host-based routing based on the identifier of the mobile node which is contained in the address.

17. A communication processing method according to Claim 12, wherein a router in the domain routes a packet having an address which contains a physical network prefix by performing prefix-based routing based on the physical network prefix contained in the address, or by performing host-based routing based on the identifier of the mobile node.

18. A communication processing method according to Claim 12, wherein, when the mobile node moves between a first subnetwork to a second subnetwork in the domain or in different domains, the mobile node compares the value of the virtual network prefix which is contained in a router advertisement serving as an information notification message which is received from a router on the second subnetwork, with the value of the virtual or physical network prefix contained in the address which is used in the first

subnetwork; and

only if the values are different, the mobile node creates an address based on the virtual network prefix which is contained in the received router advertisement serving as an information notification message.

19. A communication processing method according to Claim 12, wherein, when the mobile node moves between a first subnetwork to a second subnetwork in the domain or in different domains, if the virtual network prefix is not contained in a router advertisement serving as an information notification message which is received from a router on the second subnetwork, the mobile node creates an address based on the physical network prefix.

20. A communication processing method according to Claim 12, wherein, when the mobile node moves between subnetworks in the domain or in different domains, the mobile node sends a routing update message to a router in the domain; and

the router which has received the routing update message generates, updates, or deletes an entry for the mobile node in a routing table according to the received message.

21. A communication processing method according to Claim 12, wherein, when the mobile node moves between subnetworks in different domains, the mobile node stores a virtual-network-prefix-based IPv6 address as a care-of address in a binding update packet, the virtual-network-prefix-based IPv6 address being created according to address configuration based on the virtual network prefix, and sends the binding update packet to a home agent which manages the mobile node; and

the home agent which has received the binding update packet updates a binding cache, in which the correlation between a home address and the virtual-network-prefix-based IPv6 address is stored, according to the received binding update packet.

22. A communication terminal device which performs communications via a network, wherein a router advertisement serving as an information notification message containing a physical network prefix and a virtual network prefix for a mobile node is received, the physical network prefix being allocated to each of at least one subnetwork included in a domain; and

an address is configured based on the virtual network prefix retrieved from the received router advertisement serving as an information notification message and an

identifier of the communication terminal device.

23. A communication terminal device according to Claim 22, wherein, when the communication terminal device moves from a first subnetwork to a second subnetwork in the domain or in different domains, the communication terminal device compares the value of the virtual network prefix which is contained in a router advertisement serving as an information notification message which is received from a router on the second subnetwork, with the value of the virtual or physical network prefix which is contained in the address which is used in the first subnetwork; and

only if the values are different, the communication terminal device creates an address based on the virtual or physical network prefix which is contained in the received router advertisement serving as an information notification message.

24. A communication terminal device according to Claim 22, wherein, when the communication terminal device moves from a first subnetwork to a second subnetwork in the domain or in different domains, if the virtual network prefix is not contained in a router advertisement which is received from a router on the second subnetwork, the communication terminal device creates an address based on the physical

network prefix.

25. A communication terminal device according to Claim 22, wherein, when the communication terminal device moves subnetworks in the domain or in different domains, the communication terminal device sends a routing update message to a router in the domain.

26. A communication terminal device according to Claim 22, wherein, when the communication terminal device moves between subnetworks in different domains, the communication terminal device stores a virtual-network-prefix-based IPv6 address as a care-of address in a binding update packet, the virtual-network-prefix-based IPv6 address being created according to address configuration based on the virtual network prefix, and sends the binding update packet to a home agent which manages the communication terminal device.

27. A program which causes a communications process via a network to be executed on a computer system, said program implementing the steps of:

receiving a router advertisement serving as an information notification message containing a physical network prefix and a virtual network prefix for a mobile node, the physical network prefix being allocated to each of

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